

Sample Abstract Format

Evaluating an Alternative Silvicultural System for Mineral Wetlands

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The practice of clear-cutting when applied in mineral wetlands often leads to above-surface water tables, proliferation of grasses and other hydrophilic vegetation, and more extreme ground temperatures. These problems are related to greater site exposure, reduced precipitation interception, and lower evapotranspiration (ET) rates and contribute to low reforestation success. To find a workable solution, a study involving the Canadian Forest Service, Daishowa Marubeni International Ltd., and High Level Forest Products Ltd. was established 110 km north of Red Earth in northern Alberta to compare narrow clear-cut alternate strips, oriented in line with prevailing winds, with a patch clear-cut and an adjacent uncut control block. Seedlings of three species were planted after harvest and monitored for mortality and vigour. Groundwater table levels, ET, microclimate, and ground temperatures were measured before and after harvest. Effectiveness of the partial cut design for retaining wind firmness was evaluated using measurements of tree sway, wind, and turbulence in the control block and residual strips. The water table in the immediate post-harvest period reflected the overriding effect of precipitation, rising in 1997 (323 mm rain) and falling in 1998 (132 mm rain). Ground surface temperatures were more extreme on the strip-cut and patch-cut than on the control. The frequency and intensity of both frost and desiccating conditions was greatest on the patch-cut. Wind firmness was not completely preserved in the strip-cut. Wind penetration of the canopy and tree sway were greater in the residual strips than in the control block. Seedling survival and vigour were generally better on the strip-cut than on the patch-cut and better on mounds than on locations not mounded.

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